

Application No.: 10/669,403
Docket No.: UC0315USNA

REMARKS

Status of the Application

Claims 15, 22 and 23 are pending. Claims 15 and 23 are rejected as anticipated under 35 U.S.C. § 102. Claim 22 is rejected under 35 U.S.C. § 103. New claims

Amendments to the Claims

Each of the originally pending claims is amended to advance the prosecution by specifying that the material other than the active material is a liquid medium which functions as a solvent. The basis for these amendments may be found in the specification at page 6, lines 2-4 ("In general, the active material is dissolved, dispersed, emulsified, or suspended in the liquid medium or combination of liquid mediums.") Claim 23 has also been amended to specify that the R and X substituents are each, independently, C₁ - C₁₀ species as indicated. The claim is amended to delete certain species in the definition of X and thereby differentiate claim 23 from claim 15 and thereby overcome the objection to claim 23 based on 37 C.F.R. § 1.75. This amendment also has support in the disclosure at page 14, liens 32-33. In addition, new claims 24 - 32 are added to specify that the liquid composition is capable of forming a static contact angle on a surface of no greater than 40°, 35°, or 20°. The new claims are supported in the disclosure at page 2, lines 32-37, page 17, lines 28-29, and Tables 2, 3 and 4 on pages 24, 25 and 26, respectively.

Claim Rejections - 35 U.S.C. § 102

Babb et al., U.S. Patent No. 5,730,992

Claims 15 and 23 stand rejected under 35 U.S.C. § 102(b) as allegedly anticipated by Babb. As noted above, both claims 15 and 23 have been amended to specify that the compound is a solvent. The solvent of claim 15 is an aromatic ring substituted with -OR_f where R_f is a fluorinated alkyl or alkyl analog. Additional substituents include R, C₁ - C₁₀ alkyl, alkoxy or oxyalkyl and X, which includes the species of both R_f and R and in addition, can be H, F, Cl or Br. The solvent of claim 23 is similar, except that in the latter claim, R and X are each, independently, C₁ - C₁₀ alkyl or alkoxy, while R_f is the same as in claim 15. Babb discloses a number of solvents at Col. 15, lines 12-24, including xylenes, mesitylenes, toluene, benzene, chlorinated hydrocarbons, ketones, acetate esters, ethers, amides, nitromethane, and so forth. None of these disclose or suggest fluorinated substituents on the species containing an aromatic ring. None of these solvents read on the claimed solvents. In a prior amendment, the claim had

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been amended to specify that the composition is a liquid composition, and not a laminate as disclosed in Babb. This reference is not anticipatory.

Claim Rejection- 35 U.S.C. § 103

Poetsch, US 5,196,140, Koden, US 5,271,867 and Mercer, US 5,179,188

Claims 15 and 22-23 stand rejected under 35 U.S.C. § 103(a) as allegedly unpatentable over Poetsch in view of either Koden or Mercer. Applicants respectfully traverse this rejection. Applicants further respectfully assert that Poetsch, Koden and Mercer are directed to a field that is not analogous to the field of the present application, and does not seek to solve a similar or analogous problem. This is primarily because the properties of the additives in Poetsch, and the teachings regarding substituent properties, are all directed to solubility of the additive in at least two liquid-crystalline components and the manner in which the additive can enhance the performance of the liquid-crystalline dielectric (comprised of the additive and at least two liquid-crystalline components) where the dielectric has nematic, cholesteric or smectic properties, properties required for the liquid-crystalline dielectric to function as the liquid crystal layer in an LCD device. There is nothing in the reference to suggest that any additive disclosed therein would be useful as a solvent, or a suspension, dispersion or emulsion medium for semiconductors such as electroluminescent materials, buffers, charge transfer materials, or electrodes (i.e., the electroactive or photoactive materials of the amended claims). The dielectric (insulating) quality of the materials in Poetsch, if anything, teach away from applying Poetsch's additives in the present claims because in the present claims the material that is otherwise analogous to the additives in Poetsch is used with conductive or semiconductive materials, and the dielectric or insulating property present in Poetsch's liquid-crystalline dielectric would not contribute favorably to desired properties in Applicants' layers such as light emission or charge transfer. Koden and Mercer are similarly directed to LCD technology and particularly dielectrics (Mercer).

The Office Action cites Formula I of Poetsch, $R^1-(A^1-Z^1)_m-A^2-R^2$ with the apparent assumption that $m = 0$ to render the formula equivalent to $R^1-A^2-R^2$. Please see Col. 1, lines 10-48. A^2 is 1,4-phenylene which is unsubstituted or substituted by one or two F and/or Cl atoms and/or CH_3 groups and/or CN groups and in which one or two CH groups can be replaced by N atoms; A^2 can also be other species not immediately relevant here. One of R^1 and R^2 is H, F, Cl, Br, -CN, -NCS, or an unsubstituted or substituted alkyl group having 1 - 15 C atoms, in which one or two CH_2 groups can be replaced by a grouping selected from the group consisting of -O-, -CO-, -O-CO-, -CO-O-, -CH-halogen-, -CHCN-, -C \equiv C-, -CH=CH-, with no two heteroatoms being directly linked to each other, while the second radical is a perfluoroalkyl

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group having 1 - 15 C atoms, in which one or more CF₂ groups can be replaced by the groupings listed above, including also -CH=C-halogen- and -C-halogen=C-halogen. The structure is very specific (requiring 1,4-phenylene and asymmetric substitutions by radicals R¹ and R²) in keeping with its function of aligning the liquid crystal layers on either side of the dielectric. Simply put, these structures and related function do not teach or reasonably suggest the solvents of claims 15, 22 and 23.

Koden discloses (Abstract) a ferroelectric liquid crystal composition which requires a specific fluorophenyl compound, a specific pyrimidine compound, and an optional specific benzoate compound useful in LCD devices of large capacity. The Office Action first points to Col. 12, lines 47-48 (*sic*) which apparently describes a step in the formation of a biphenyl compound from 3-fluoro-4-octyloxybromobenzene (shown in Col. 12, lines 25-30), which is apparently recited because it is a bromobenzene compound, without any further statement of relevance to the claims under review. The first required compound of the ferroelectric liquid composition of the disclosure, as disclosed in the Abstract, has general formula I (Col. 2, line 65) which discloses a compound having 1,4-phenylene rings directly substituted with F. The second required component has formula II, Col. 3, line 10, which represents a composition having at least one 1,4-phenylene and optionally two, with one pyrimidine ring, where all the rings are shown to be unsubstituted in the general formula. The optional component is shown in Col. 3, line 25 (the specific benzoate structure). None of these read on or fairly suggest the claimed solvents. Mercer discloses polyethers and solvents (please see Col. 8, lines 38-63) neither of which read on or fairly suggest the claimed solvents. In fact, none of Mercer's solvents even have an aromatic moiety, while the aromatic species appear to be polymeric, unlike the claimed solvents.

For all of the reasons presented above, and in light of the claim amendments, Applicants respectfully submit that these rejections be withdrawn.

CONCLUSION

In view of the foregoing claim amendments, remarks, and the terminal disclaimer previously filed, Applicants respectfully submit that the above referenced application is in condition for allowance and a notice of allowance is earnestly requested, for Claims 15, 22-23 and 24-32.

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